

REMARKS

Claims 1-11, 17, 23, 28, 30, 31, 36, 43, and 51 were previously pending with claims 11, 17, 28, and 43 being withdrawn from consideration. By this response, Applicant amends claims 1, 7, 23, 30, and 31 and cancels claims 5, 6, 11, 17, 28, 36, 43, and 51. As a result, claims 1-4, 7-10, 23, 30, and 31 are pending for examination with claims 1, 23, 30, and 31 being independent claims. No new matter is added.

I. **Claims 7 is Amended to Overcome 35 USC 112 Rejection**

Claims 7 and 9-10 stand rejected under 35 USC, 2nd paragraph, for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. In particular, the Office Action states that it is unclear how a distance can be equal to a polymer.

By this response, claim 7 is amended to recite a distance equal to a length of the polymer, which is believed to address the rejection of claim 7 and claims 9 and 10 depending therefrom. Accordingly, withdrawal of the rejection is respectfully requested.

II. **Independent Claim 1 is Patentable Over Blankenstein**

Claims 1-10 stand rejected under 35 USC 102(b) as being anticipated by US 6432630 (Blankenstein). Applicant amends claim 1 to clarify distinctions over Blankenstein.

As amended, claim 1 defines an apparatus for positioning a polymer in a microchannel. The apparatus has, among other features, a first section of the microchannel disposed between the first and second ends of the microchannel and having a first set of substantially opposed funnel shaped sidewalls constructed and arranged to create a first velocity gradient. Opposed flow control channels are positioned between the first section and the second end of the microchannel. A second section of the microchannel is disposed between the opposed flow control channels and the second end of the microchannel and has second section having a second set of substantially opposed funnel shaped sidewalls constructed and arranged to create a second velocity gradient. The apparatus also includes a polymer carrier fluid including at least one polymer.

Applicant respectfully directs the Examiner to Fig. 25 of the present application, which represents one possible embodiment that corresponds to claim 1, as amended. Applicant

respectfully points out that Blankenstein fails to show microchannel having a first set of substantially opposed funnel shaped sidewalls constructed and arranged to create a first velocity gradient, opposed flow control channels positioned between the first section and the second end, and a second section having a second set of substantially opposed funnel shaped sidewalls constructed and arranged to create a second velocity gradient, as claim 1 is amended to recite.

For at least the above reason, independent claim 1, and claims 2-4 and 7-10 depending therefrom are believed to be patentable over Blankenstein. Accordingly, withdrawal of this rejection is respectfully requested.

III. Independent Claim 23 is Patentable Over the Asserted Combination

Claim 23 stands rejected under 35 USC 103(a) as being unpatentable over Blankenstein, in view of US 6762059 (Chan) in further view of Science 1997 (Perkins). Without acceding to the propriety of the rejection, Applicant amends claim 23 to clarify distinctions over these references.

As amended, claim 23 defines an apparatus for elongating a polymer. The apparatus comprises, among other features, a first set of substantially opposed funnel shaped walls positioned at the first end, opposed flow control channels positioned between the first set of substantially opposed funnel shaped walls and the polymer elongation zone, and opposed polymer control channels in fluid communication with the microchannel through the opposed sidewalls, the polymer control channels defining therebetween the polymer elongation zone.

Applicant respectfully directs the Examiner to Fig. 24 of the present application, which shows one possible embodiment that corresponds to claim 23, as amended. Applicant respectfully points out that none of Blankenstein, Chan, and/or Perkins, or the combination as asserted, show an apparatus, like that shown in Fig. 24. In particular, none of the references or the combination show a first set of substantially opposed funnel shaped walls that create a first velocity gradient and which are followed by opposed flow control channels that introduce additional fluid to isolate a flow stream of a carrier fluid from opposed walls of the microchannel, which are followed by opposed polymer control channels that define therebetween the polymer elongation zone.

For at least the above reasons, independent claim 23 is patentable over Blankenstein, Chan, Perkins, and/or the combination as asserted. Accordingly, withdrawal of this rejection is respectfully requested.

IV. Independent Claim 30 is Patentable Over the Asserted Combination

Claim 30 stands rejected under 35 USC 103(a) as being unpatentable over Blankenstein, in view of Chan. Without acceding to the propriety of the rejection, Applicant amends claim 30 to clarify distinctions over these references.

As amended, claim 30 defines an apparatus for maintaining a polymer in an elongated configuration. The apparatus has, among other features, a microchannel having opposed sidewalls defining a first microchannel width, and a plurality of positions that define a second microchannel width that is smaller than the first width. Transitions between each of the opposed side walls defining the first microchannel width and each of the plurality of positions defining the second microchannel width contact and inhibit relaxation of a stationary elongated polymer when the polymer extends between the plurality of positions.

Applicant respectfully directs the Examiner to Fig. 22 of the present application, which shows one possible embodiment that corresponds to claim 30, as amended, and that may include transitions like those shown in Fig. 21, among others. Applicant respectfully points out that none of Blankenstein and/or Chan show a plurality of transitions that contact and inhibit relaxation of a stationary elongated polymer contained within a microchannel, which claim 30 is presently directed towards.

For at least the above reason, claim 30 is believed to be patentable over Blankenstein and Chan, as asserted. Accordingly, withdrawal of this rejection is respectfully requested.

V. Independent Claim 31 is Patentable Over the Asserted Combination

Claim 31 stands rejected under 35 USC 103(a) as being unpatentable over Blankenstein, in view of US 6762059 (Chan) in further view of Science 1997 (Perkins). Without acceding to the propriety of the rejection, Applicant amends claim 31 to clarify distinctions over these references.

As amended, claim 31 defines an apparatus for elongating a polymer and maintaining the polymer in an aligned or elongated configuration. The apparatus has, among other features, a plurality of transitions for contacting and inhibiting relaxation of a stationary, elongated or aligned polymer contained in a narrower width of a microchannel.

Applicant respectfully directs the Examiner again to Fig. 22 of the present application, which shows one possible embodiment that corresponds to the above discussed features of claim 31, as amended. Applicant respectfully points out that none Blankenstein, Chan, and/or Perkins, or the combination as asserted, show a plurality of transitions as recited in claim 31.

For at least the above reason, claim 30 is believed to be patentable over Blankenstein and Chan, as asserted. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

In view of the foregoing remarks, this Application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this Response, that the application is not in condition for Allowance, the Examiner is requested to call the undersigned attorney or agent at the telephone number listed below.

If this response is not considered timely filed, and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an Extension fee that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

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Respectfully submitted,

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